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MUSCULAR EXCISION, AS AN AID TO DIAGNOSIS.

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THE affections characterized by atrophy of muscular tissue, which have heretofore been but imperfectly understood, either as to their true nature or proper treatment, seem now to be emerging from the dim regions of the unknown, and, thanks to the patient and profound researches of recent investigators, to be taking position in the ranks of the known. The observations, both clinical and pathological, in this direction, have been abundant, and abundantly recorded. To undertake any general review of them is not the object of this paper, which is simply to call attention to the mode in which the pathology of these diseases has been made to bear directly upon the diagnosis, by means of the excision of muscular tissue, during life. This opens to the clinical observer an invaluable source of knowledge, and renders the trocar and scalpel almost as useful in medical as in surgical diagnosis.

For the removal of muscular tissue for microscopic examination, various instruments have been devised. Four small trocars for this purpose are described and figured by Dr. Keen, in the *American Journal of the Medical Sciences* for Oct., 1869. Two of them, namely, Duchenne's and Noeggerath's, he has found to be valuable and reliable instruments. Duchenne's is also figured and highly praised by Dr. W. A. Hammond, in a note on Organic Infantile Paralysis, in his translation of Meyer's Medical Electricity. Noeggerath's instrument has also been described to me by Dr. Robert Amory, of Brookline, who saw it successfully used in Paris, three years ago. With the former of these, a bit of muscular tissue becomes included in a small opening, at the side of the instrument; and, with the latter, it is grasped by a pair of hooked points protruded from its open ex-

tremity, after introduction. In either case, a small puncture is the only wound inflicted.

This method of diagnosis was used in two cases by myself, in Jan., 1867, when an interne at the Boston City Hospital; but, as I knew of no specially-adapted instrument, the scalpel was employed. The operation was made nearly painless, by freezing with rhigolene; an incision, an inch in length, was carried through the skin and subcutaneous fat, to the muscle, a portion of which was pinched up by the forceps, and removed with a scalpel. The wounds healed, by first intention. This mode of procedure takes a little more time, and appears more formidable to the patient, than the simple puncture with a slender trocar, and must therefore be less desirable in a majority of cases; but, if the skin be well frozen, it is not more painful, and possesses the advantages of showing the depth of subcutaneous fat, giving a view of the surface of the muscle, allowing the removal of a larger portion, and ensuring the certainty of obtaining muscular and not adipose tissue. The advantages, therefore, are not all on the side of the trocar.

The knowledge to be obtained from muscular examination, is, in certain cases, of the greatest value, confirming a diagnosis, or settling a doubtful one. It is especially useful in cases of muscular atrophy, by helping us to determine whether this is due to disuse from paralysis of motor nerves, or is a special nutritive lesion of the muscles themselves. In trichiniasis, also, its value is obvious.

The cases referred to at the Boston City Hospital occurred in the service of Dr. J. N. Borland, who kindly permits me to use them here, in illustration. The muscular excision and examination were made by me, with his consent. Both cases were also under the care of Drs. W. W. Morland and F. E. Oliver, during their visiting terms.

CASE I.—*Progressive Muscular Atrophy*.—C. W. P., miner, bachelor, æt. 34. Admitted to Hospital, Sept. 1st, 1866. Is naturally a strong, robust man. Has had, at several times, slight attacks of rheuma-

tism; his father and a brother and sister have also had rheumatism. The present illness came on in December last, when working in the gold mines of California. Was then exposed to changes of temperature and frequent wetting of feet. The ankles first became swollen and painful; and, since then, the knee joints and arms have been affected in the same way, but without fever, at any time. From pain and swelling of the arms, he has, at times, been unable to raise the hands to the head. With the first symptoms of pain, emaciation commenced, and has progressed slowly, but persistently, up to the present time. His weight, in health, is 164 pounds, and, at present, 120 pounds. Now has great loss of muscular power, throughout the whole body. In the hands, arms, and legs, deep hollows are seen at the points which are normally filled with muscular substance. This is very striking in regard to the thenar and hypothenar eminences of the hand. The face, however, shows no emaciation. Ankles are somewhat painful, but not swollen. At night, they are the seat of sharp, aching pain, and a sensation "as if they would burst." Has had no cough, pain in chest, nor sensible cardiac symptoms. Bowels are usually regular, but now relaxed; three dejections in last twenty-four hours. Urine free and normal; appetite good. Is now in bed, from preference, but sits up every day. Pulse 68. Tongue quite clean. No blue line on gums. Lung and heart sounds normal. Sensation normal, over whole body; motion greatly impaired, apparently from muscular weakness alone. No symptoms of any disease of nervous centres. Muscles respond feebly to reflex excitation, and retain electric contractility, in a lessened degree.

Placed upon iodide of potassium; and faradization from the magneto-electric battery ordered, to lower limbs.

Sept. 13th.—Diarrhoea, checked by chalk and opium.

15th.—Complains of pain, extending from the lumbar region, round the left side, to umbilicus. No spinal tenderness.

18th.—Strength improved.

Nov. 11th.—Diarrhoea, lasting four days.

25th.—Iodide of potassium suspended, and the following prescription substituted:—

R. Ext. nucis. vom., gr. vi.
Ferri sulph. ex., gr. xij.
Quin. sulph., gr. vi.
Syr. simp., q. s.

M. Ft. pil. No. xij. One pill to be taken three times a day.

26th.—Slight muscular twitchings; dose of yesterday diminished one half.

27th.—No twitching. A papular eruption observed, on the left shoulder.

Dec. 6th.—Functions, in all respects, well performed. During the last three days, has felt increasing strength, with greater freedom of motion.

20th.—Complains of erotic sensations in the night. Pills of nux vomica suspended; and pil. ferri. carb. given, in 5 gr. doses, thrice daily; also, bromide of potassium \mathfrak{ij} . at bedtime.

Jan. 8th, 1867.—Three loose dejections yesterday, checked by a simple opiate.

11th.—A portion of skin over the lower third of left biceps being frozen by rhigolene, a longitudinal incision, an inch in length, is made down to the muscle, which is very small, but not less firm in texture than normal. Subcutaneous fat one-half inch in thickness. A small portion of muscular tissue being removed by the scalpel, and washed free of blood, is found to be of a pale, yellow color. Under the microscope, the following elements are observed:

1st. Striated fibres, pale, but healthy.

2d. Striated fibres, containing a greater or less proportion of granular matter and oil, within the sarcolemma.

3d. Fibres, consisting only of sarcolemma, stuffed with granular matter and oil globules, and with no trace of transverse striation.

4th. Diffused oil globules, of varying size, lying upon the fibres, outside of the sarcolemma.

5th. Diffused granular matter, not confined by sarcolemma.

Some of the fibres being teased at their extremities, so as to show the primitive fibrillae in brush-like form, the sarcous elements are seen, in some cases, to be normal, while in others they are mere granules, still retaining their position in the fibrils.

About half the tissue consists of Nos. 1 and 2.

Powerful currents from Farmer's thermo-electric battery ordered twice daily, to upper and lower limbs.

Jan. 16th.—Three loose dejections, with abdominal pain, last night.

27th.—Weight 120 pounds.

Feb. 2d.—Increased warmth and muscular strength in left foot.

11th.—Improvement in sensation of health.

17th.—Complains of soreness of muscles.

19th.—Sensation of increased strength in thighs.

21st.—A feeling of soreness in neck and left chest, as if from over-work. Apparently an increased body to anterior muscles of thighs and arms.

26th.—Pil. ferri carb. suspended, and iodide of potassium given instead, in 5 gr. doses.

March 17th.—Feeling of increased health, mentally and physically.

23d.—Weight 121 pounds, being a gain of one pound in six weeks. Walks better than at any time during illness.

April 11th.—A moist, cloudy morning. Feels better, as is usually the case, on such days.

24th.—Complains of a prurient, papular eruption about shoulders. The quadriceps extensor femoris apparently gaining in size and strength.

May 21st.—Soles of feet have the abnormal sensation of slipping away from him. This was first observed two weeks ago, and is increasing.

May 24th.—Diarrhoea, with pain.

26th.—Complains of pain under left nipple, shooting through to back. Relief afforded by a sinapism.

July 3d.—Has, at times, troublesome palpitation of heart. Erotic tendency considerably increased, during past few days. Hoffman's anodyne ordered, 3j. three times a day; and bromide of potassium, ʒj. at bed time.

27th.—Ferri et quiniæ cit., gr. v., to be taken thrice daily.

August 1st, 1867.—Discharged, "not improved," and sent to Tewksbury State Almshouse.

The superintendent of that institution kindly informs me that the patient remained there until Oct 14th, 1868, when he was discharged, to go to New Brunswick. While at Tewksbury he improved somewhat, and he has since written from New Brunswick that he was much better, and felt hopes of an entire recovery.

In this case, the symptoms and march pointed to *progressive muscular atrophy*; and this diagnosis was verified by the muscular excision, which revealed the lesion characteristic of that affection. The degeneration, partly granular and partly fatty, affecting certain fibres, which are interspersed among healthy ones; and the gradual conversion of sarcois elements into granules, are quite pathognomonic, answering to the descriptions of Cruveilhier, Duchenne, Merym, Roberts and others. Without attempting any general review of the case, a few points demand passing notice.

Concerning the *mode of onset*, we find that the disease commenced, according to the patient's statement, with pain and swelling of the ankles, and afterwards of the knee-joints and arms. After his admission to the Hospital, there was a sensation in the ankles "as if they would burst." Now, a painful access is so rare as not to be mentioned by Duchenne, in his classical description; but it is specially mentioned by Jaccond, since articular and muscular pains ushered in the case which he takes as the text for his admirable lectures on this subject, in his "*Léçons de Clinique Médicale*." Meyer speaks of "tearing pains, which at times have their seat in the joints, at times follow the path of certain nerves, at times are diffused." But *swelling* seems not to belong to the disease, at the outset. It has been observed, a few times, in the later stages; but not, so far as I can discover, at an early period. Possibly, there was only a *sensation* of swelling, as was the case when the patient entered the Hospital; or, more probably, there was true swelling, due to superadded sub-acute rheumatism. Seventeen months after the commencement of the disease, appeared the first and only lesion of sensation, namely, a feeling as if the feet were slipping away from him. This is also a rare feature, although anesthesia is mentioned among the possible symptoms by both Duchenne and Benedikt. This symptom and the erotic tendency are suggestive of *progressive locomotor ataxy*; but there was an absence of the peculiar walk and of any affection of sight, while the erotic symptoms did not lead to spermatorrhœa.

Concerning the *treatment* of this case, it was observed that, when faradization was thoroughly employed, marked improvement followed; and that retrogression attended its suspension. This coincides with the teachings of Duchenne, who has succeeded in curing the disease by this agent. The galvanic spinal-nerve current recommended by Meyer, and the galvanization of the sympathetic preferred by Remak, were not employed.

As to the seat of the primary lesion in this case, the absence of an autopsy prevents anything definite from being said. While Merym contends that it is seated in the muscles themselves, a long list of observers have furnished cases in which degenerations of the spinal cord or its anterior roots were discovered; and Jaccond argues most ably for the sympathetic system, as the true seat of the disease, adding the

case of Schneevogt and two of his own, in which lesions of that nerve were demonstrated.

CASE II.—*Paraplegia*.—A. N., spinster, et. 28, tailoress. Admitted to Hospital Sept. 29, 1866. Has always had good health till last spring, when she suffered from a cough, with white, frothy sputa, for two months, without emaciation, but obliging her to leave off work for a time. During the summer she was well, till nine weeks ago, when cough again came on, and she soon began to feel weak and run down, and to suffer from profuse night sweats; but the cough has now been absent for three weeks. Five weeks ago, being at a catamenial period, she got her feet wet, and menstruation was arrested. A few days after, in attempting to walk across the room, her limbs gave way, and she fell to the floor. From that time she has been unable to walk, or to move the lower limbs, even when in bed, without the aid of the hands. On moving them passively, much pain is felt in the popliteal space. Has constant formication below the knees, burning sensation in the feet, and slight anaesthesia. None of these symptoms were noticed before falling. Has had no cramps, twitches of the limbs, nor pain in the back. Urine is high colored and smells strongly, and micturition is attended with scalding. Bowels constipated. Catamenia always regular till the present paralysis came on, since which time she has not menstruated. No leucorrhœa. Never has had dyspepsia nor palpitation of the heart. No pain in chest; appetite good; much thirst.

On examination, slight tenderness is found over the last lumbar vertebra. Reflex and electro-muscular contractility absent in the lower limbs. Prolonged expiration and bronchophony at apex of right lung behind. Respiration rather obscure under both clavicles. Resonance, on percussion, normal.

Oct. 1st.—Pulse 100. Tongue a little coated. Had much pain in the lower limbs last night. Some hyperæsthesia last evening, and twitching yesterday, for the first time. Placed upon tonic treatment, and faradization from the magneto-electric battery applied twice daily to the lower limbs and back.

During the next two months there was improvement in the phthisical symptoms, but none in the paraplegia.

Dec. 1st.—On pressure over the spine, tenderness is found to exist over the 4th, 5th, 11th and 12th dorsal and all of the lumbar vertebrae, most marked over the

5th and 11th dorsal and 3d lumbar. A hot sponge gives no pain in any part of the spinal column; but, when applied over 5th lumbar vertebra, a sensation of heat is felt in the sole of the right foot.

Jan 21st, 1867.—By the aid of rhigolene and the freezer, an incision is made over the outer edge of the right soleus, which is considerably diminished in size. A portion of muscle being excised, is found, when washed, to be of a pale, yellowish-red color. On microscopic examination, the muscular tissue is found completely degenerated, showing neither transverse nor longitudinal striation; and sarcolemmas are nowhere to be found. The sarcolemma is loosely filled with oil-globules and granular matter, which elements are also diffused among the fibres, with much white, fibrous tissue.

After this time the lower limbs were subjected, twice daily, to powerful shocks from Farmer's thermo-electric battery, under which muscular irritability was gradually restored, and then muscular power steadily acquired.

Feb. 12th.—Feels as if she had some slight control over paralyzed muscles.

May 25th.—Made first attempt at walking.

June 8th.—Walked the whole length of the ward by taking hold of the bedsteads, and was then discharged, "much improved."

The phthisical symptoms entirely disappeared during her stay in the hospital. I was no longer there when she was discharged, and it does not appear, from the record, what nervous symptoms then remained, nor whether menstruation had been restored.

For an interesting sequel to this case I am indebted to Dr. Borland, who writes me that he was called to see the same patient the winter after she left the hospital. She had entirely recovered from the paralysis, and had been strong enough to walk for miles; but was then having a few symptoms which made her fear a return of the affection. She informed him that she was married, and had been so before entering the hospital, but for some reason had not wished to make the fact known.

In this case we find a somewhat peculiar, not to say perplexing, grouping of symptoms. The sudden access of the paraplegia, following a suppression of the menses, from wetting the feet, without pain in the back or limbs, convulsive movements, or general symptoms of hysteria, argues for a reflex uterine paraplegia. The disease

once established, the completeness of the acinesia, the marked lesions of sensation, muscular twitchings, and absence of reflex excitability, suggest chronic inflammation, or, at least, hyperemia of the cord; while the complete recovery tends to indicate that the cord had not sustained any profound organic lesion. The condition of the muscular tissue examined was that of extreme fatty degeneration, which, while differing from the ordinary appearance of the muscle in progressive muscular atrophy, was as complete as is reached in the latest stage of that disease, and a disorganization which would naturally be considered irreparable. The degeneration was evidently due to five months of complete disuse; and the only way in which we can account for the ultimate recovery is by presuming that this condition was limited to certain muscles or parts of muscles. The ready improvement, under powerful faradization, suggests that the atrophy had outlived the nervous lesion. The most rational explanation of all the symptoms seemed to be that the paraplegia was reflex at first; but was complicated with hyperemia, or even inflammation of the cord. The spinal tenderness, very slight at first, and gradually developing to a considerable degree, tends to support this opinion. This, however, is at variance with the view of Brown-Séquard, who considers reflex paralysis as due to anæmiating arterial spasm in the cord, with which congestion is, of course, incompatible; but Handfield Jones, in his Lunnian Lectures for 1865, argues very strongly against this theory, and assumes, in its stead, an exhaustion of nerve-fibres, from excessive irritation, independent of any circulatory changes. The muscular examination, in this case, although not possessing the pathognomonic value which it did in the first, was yet of great assistance, and afforded the indication for increased energy of faradization, by which means a restoration to health was finally accomplished.

EXOPHTHALMOS, WITH INTRA-CRANIAL DISEASE. DEATH. AUTOPSY.

By HENRY W. WILLIAMS, M.D., President of the American Ophthalmological Society.

AUGUST 9th, 1869, I related to the Boston Society for Medical Improvement a case of exophthalmos, in which the diagnosis, that the symptoms resulted from pressure from an intra-cranial tumor, was verified by autopsy. I had at that time under my observation another, similar, case, in which the

diagnosis has had a like confirmation, and of which the following is the history.

JUNE 30th, 1869, I saw, at the City Hospital, Mrs. —, a large, healthy-looking, middle-aged woman. She said she had always been well until the last winter, when she began to have pain at the vertex of the head, running down towards the left eye. At times the head has been sore on combing the hair, and she has also had a feeling of soreness and stiffness when she moved her head.

In April, she first noticed that the left eye was being pushed forward, and that sight began to fail in this eye. The protrusion gradually increased, until the eye seems now nearly forced from the orbit, and vision is wholly lost.

The patient has had severe neuralgic attacks, and her appetite has gradually failed; but she has had no paralysis or loss of sensibility.

The left eyeball is very slightly injected, and is not sensitive when pressed upon. Pupil largely dilated and insensible to light.

Ophthalmoscopic examination shows nearly complete obliteration of the retinal arteries, much congestion of the veins, and small hæmorrhagic effusions scattered everywhere in the retina.

The probable existence of a tumor within the head, and its fatal tendency, was explained to the friends of the patient, and she was advised to continue under the care of her physician, Dr. O'Connell.

Three weeks after this examination of her condition she had an attack of hemiplegia, and when visited by my assistant, Dr. Clark, she was found to have complete loss of motion on right side. Sensation normal. The eyeball protruded less than when seen at the hospital. No ophthalmoscopic examination. The mental faculties were affected in some degree; she was absent-minded and unable to remember anything. The bladder and rectum were not completely paralyzed, but acted sluggishly.

The patient gradually failed, until her death, which occurred about a year from the time of the first manifestation of cerebral symptoms.

The autopsy was made Dec. 24th, 1869, by Dr. John Homans, in presence of Drs. O'Connell, J. O. Green and myself. Head only examined. A morbid growth, not above the size of a filbert, was found in the right side and middle of the pons Varolii, extending a little into the left side. Left optic tract involved in a morbid growth of similar size and appearance. Left optic nerve, anterior to the commissure, soften-

ed, and its tissue almost broken down. Outer anterior portion of left optic thalamus softened and grumous.

Microscopic examination of sections of the tumors showed them to be made up of small cells, with very little connective tissue.

There was not in this case, as there was in the other above mentioned, any pressure from a tumor within or behind the orbit which could have directly caused the protrusion of the eyeball.

SEVERE CASE OF TETANUS CURED BY EXSECTION OF A NERVE.

By GEORGE E. FOSTER, M.D., Springfield, Mass.

M. L., aged 24; married; by birth an American, and by occupation a seamstress; bought a pair of shoes July 20th, 1869, and put them on; while walking, she felt a sharp substance pricking the skin of the anterior and interior aspect of the right heel. She continued to walk, but with pain, until she stepped from the curbstone to cross the street, when accidentally her whole weight was thrown on to the heel and something was driven into it which caused exquisite pain. She called a carriage which was passing, and rode to her residence. Upon removing the shoe, a shoe-nail was found driven into the heel, the end protruding. A shoemaker who lived near was called; he removed it with pincers, and upon examination found it to be whole and one inch and a quarter in length. The pain subsided and the wound healed, leaving no trace of the injury. No more was thought of it until Aug. 3d, at 12 o'clock, when she awoke in the night with chills, stiffness of the limbs and slight twitchings of the muscles of the arms. Chafing and hot drinks were resorted to by the family, but without changing the symptoms. At 3, A.M., the family physician was called; at that time, she had spasms of all the limbs, and well-marked trismus, mind clear, pulse full. He tried all the remedies that could be thought of, but she became worse very fast, and at 8, A.M. another physician was called, who pronounced the case hopeless. The Doctor in charge not willing to give up, they sent for me, but being out of town I did not see her until 12, M. She was then very weak, spasms constant, trismus well-marked, pulse 97 and very feeble, mind perfectly clear. All the known remedies were again tried, but with no better result. She could give no cause for the attack. The physician in attendance, while conversing,

accidentally spoke of the accident three weeks before, and the family exhibited the nail, which was whole, but upon examination a slight spot of rust was found near the point. A subcutaneous injection of a solution of the sulphate of atropia was made over the posterior tibial nerve, but without relief. At 4.30, P. M., she being under the influence of ether, I cut down upon and with care removed about two lines of the internal plantar nerve; hot cataplasms of flaxseed, yeast and laudanum, were ordered, to be applied once every hour and a half. Pulse one hour after the operation was 45 and fluttering, pupil of right eye fully dilated and of the left contracted, mind wandering. Passed a bad night (no spasm or trismus after the operation); wine whey was given both by the mouth and rectum every hour during the night.

Aug. 4th, 8, A.M.—Mind again clear, pulse 94 but weak, has gained strength, wound suppurating.

5th.—Pulse 86 and good. Beef tea and wine whey still continued, with toast; wound suppurating freely.

6th.—Every symptom good—still quite weak.

10th.—Ordered the wound to be kept open five days.

Jan. 12th, 1870.—She is as well as ever; no spasm of any kind since the operation.

COLD-WATER TREATMENT OF TYPHOID FEVER IN MUNICH.

Translated from the Allg. Med. Central Ztg., by D. F. LINCOLN, M.D.

In the course of the preceding year the treatment of typhus by cold water, after the method of Brand, has found its way into nearly all the large hospitals of Germany; and its eminent success has received such unanimous confirmation, that we may very properly direct especial attention to those cases which have resulted fatally in spite of the treatment.

In the late Prof. von Pfeuffer's department of the General Hospital in Munich, 126 typhoid patients underwent the cold-water treatment from the time of its introduction (Oct. 1, 1868) to June 1, 1869. Of these, there died ten; or 7.9 per cent; while the previous mortality in the same department is reckoned at 12-15 per cent. And in an epidemic which broke out in the first part of June, and which is at present on the decline, only two have died out of more than one hundred patients treated in the department.

Half-baths, of from 10° to 16° R (55-68° F.), and lasting from a quarter to half an hour, were almost exclusively used. As soon as the temperature under the arm-pit reached 39.5° C. (103.1° F.) the patient was seated in the bath and the water in the bath was thrown and poured over him; if the temperature had risen to 40° C. (104° F.) or higher, ice-water was poured over him while he remained in the bath. In the intervals of bathing he was covered with compresses wet in cold water, changed whenever required; these have now been replaced by large bags of ice applied to head, breast and abdomen. Ziemssen's method of gradually cooling the baths could only be used in exceptional cases, owing to a deficiency in the number of attendants. When the bath was contraindicated, frequent washings with ice-water, lasting ten or twenty minutes, were substituted. Of late the patients in this department have been covered with a simple linen cloth instead of a woollen one, and the author believes that this change has been a perceptible assistance to the cold-water treatment. Different medicines were given only exceptionally, when urgently required.

The following are the general conclusions in reference to the ten fatal cases.

1. In seven, the autopsy revealed the existence of leuco-colo-typhus; of these, three were cases of relapse. Three died in the fifth week, four in the fourth, two in the third and one in the second. Important alterations in the lungs were observed in all but one case; viz., croupous pneumonia three times; splenization three times; larger or smaller infarctions three times; malignant diseases of the larynx three times. Intestinal hæmorrhage was observed three times, but was only once of consequence.

2. As to the causes of death in the individual cases, they appear to be as follows: Three died of functional disturbance of the respiratory apparatus, caused by croupous pneumonia. Six died from the deleterious effects of febrile elevation of temperature, some directly from the heart, others indirectly through alterations in the lungs. In two of these six cases, the baths were not thoroughly administered; in one, the treatment was commenced too late; in three, the individual power of resistance to elevation of temperature was insufficient—one patient having tuberculosis, another chronic alcoholism, a third hypertrophy of the heart. One case died from hyperæmia in all the vital organs, especially the lungs, in consequence of forcing the cold baths too

far; the heart in this instance, especially the left ventricle, was hypertrophied, and the pericardium was adherent to the entire surface of the right ventricle.*

The most important conclusions drawn from these ten cases are as follows:—

1. In order to determine the causes of death in the several cases, it is absolutely necessary to make a careful comparison of the clinical records with the results of autopsies; and above all, to make the most diligent microscopical examination of all vital organs.

2. The cold-water treatment fails to arrest the fatal result—

(a) in cases where death is caused by local lesions in the intestine (perforation, melæna);

(b) when death is caused by the inter-currence of local affections, as croupous pneumonia;

(c) in cases which come too late under treatment—as when there are prominent symptoms of fatty degeneration, especially of the muscles of the heart;

(d) when the temperature is permanently high, but the bath is contra-indicated by existing conditions (heart disease) or by subsequent circumstances (intestinal hæmorrhage);

(e) when the individual has but feeble power to resist the action of high febrile temperature (in tuberculosis or alcoholism), and while the efforts made to reduce that temperature are but imperfectly successful.

3. Pneumonia does not contra-indicate the use of cold baths. Heart diseases require that they shall at least be administered in their mildest form (Ziemssen's baths).

4. A definite temperature (39.5°=103.1° F.) cannot by itself be regarded as establishing the necessity of the bath. Another factor is equally important, namely, the duration; for if the temperature ranges from 39° to 39.5° during several hours, the bath is required at least as much as if the latter degree were observed but once, while

* In spite of the most violent opposition from the patient, he was made to take twenty-four cold baths within five days. This did not effect any permanent reduction of temperature. His reaction, both in the bath and afterwards, was excessive; his complaints of extreme constriction, difficulty in breathing, and suffocation, did not diminish upon growing accustomed to the baths, as is so often the case with other patients; cyanosis, and long violent chills, were repeatedly observed after the bath. On the 22d of December he took seven baths, after the last of which he fell into a state of collapse, which required the use of stimulants, and induced the physician to suspend the application of cold in this energetic form. The temperature, however, had not been reduced by this bath. On the next day the patient had somewhat recovered, but his general condition was considerably below what it had been.

the general range of temperature were low. Experience has shown us, at least, that a fever with distinct remissions and exacerbations, though the latter may be very considerable, is much better borne than a temperature which is moderately but continuously high.

6. Account must be taken, as far as possible, of the individual power of resistance. The thermometer may not always furnish the first indication for the bath; for the individual weakness may be first denoted by a failure of the pulse, or the occurrence of delirium, or of albuminuria.

7. The cold-water treatment is susceptible of still further improvement.

Bibliographical Notices.

On the Physical Basis of Life. By T. H. HUXLEY, LL.D., F.R.S. New Haven: Charles C. Chatfield 1870.

This lecture, originally delivered in Edinburgh, Nov. 18, 1868, sets forth in a popular form that theory of life which it is difficult, notwithstanding the author's disavowal, to avoid calling materialistic.

Dr. Huxley begins by illustrating the various forms in which the "physical basis of life," or "protoplasm," is found, from the lowest fungus to the great trees of California, or the invisible animalculæ to the whale, and shows that the essential characteristics of all living things are similar in kind though differing in degree. These views, with their further illustrations and various facts of inorganic and organic chemistry, are not, however, what make this lecture so remarkable and have caused it to be so widely circulated in England and in this country. The following sentences will, better than any others which can be quoted within reasonable limits, express the views of the lecturer.

"If the properties of water may be properly said to result from the nature and disposition of its component molecules, I can find no intelligible ground for refusing to say that the properties of protoplasm result from the nature and disposition of its molecules."

"It may seem a small thing to admit that the dull vital actions of a fungus, or a foraminifer, are the properties of their protoplasm, and are the results of the nature of the matter of which they are composed."

"But if, as I have endeavored to prove to you, their protoplasm is essentially iden-

tical with, and most readily converted into, that of any animal, I can discover no logical halting place between the admission that such is the case and the further concession that all vital action may, with equal propriety, be said to be the result of the molecular forces of the protoplasm which displays it. And if so, it must be true, in the same sense and to the same extent, that the thoughts to which I am now giving utterance, and your thoughts regarding them, are the expression of molecular changes in that matter of life which is the source of our other vital phenomena."

The "gross and brutal materialism" of which Dr. Huxley expects to be accused, he repudiates, but not so much by explaining away or modifying the views just expressed, as by saying what may be condensed into "I do not know anything more." His concluding sentence really expresses the true scope of his argument, and the doctrines which it might seem to support are opposed by two admissions: 1st, that protoplasm only becomes such under the influence of preëxisting protoplasm (p. 25); and 2d, "that our volition counts for something as a condition of the course of events" (p. 34).

The sentence referred to is as follows:—

"Thus there can be little doubt that the further science advances, the more extensively and consistently will all the phenomena of nature be represented by materialistic formulæ and symbols. But the man of science, who, forgetting the limits of philosophical inquiry, slides from these formulæ and symbols into what is commonly understood by materialism, seems to me to place himself on a level with the mathematician, who should mistake the x's and y's with which he works out his problems, for real entities; and with this further disadvantage as compared with the mathematician, that the blunders of the latter are of no practical consequence, while the errors of systematic materialism may paralyze the energies and destroy the beauty of a life."

This lecture, though highly interesting as showing the position of so eminent a thinker as Prof. Huxley, and many others with him, really testifies to no important advance in knowledge, but only gives the key to a new method; for, admitting as fully as we please, that all the higher as well as lower vital actions are coincident with changes of certain masses of protoplasm, the question of cause is not in the least touched thereby. If Prof. Huxley declines to consider the questions usually called metaphysical, he has undoubtedly a right

to choose as his field of labor that in which he has labored with so great success; but it is by no means so certain that other paths lead to such insignificant results as he would have us suppose.

The publishers should be thanked for presenting this highly instructive address in so convenient a form. E.

A Practical Treatise on the Diseases of Children. By ALFRED VOGEL, M.D., Professor of Clinical Medicine in the University of Dorpat, Russia. Translated and edited by H. RAPHAEL, M.D., late House-surgeon to Bellevue Hospital, &c. &c. From the Fourth German Edition. Illustrated by six Lithographic Plates. New York: D. Appleton & Co. 1870. 8vo. Pp. 593.

PAPER excellent. Type rather small, but very clear. Illustrations extremely well done.

The classification seems to be pretty much that which forms the basis of the new Nomenclature of Diseases issued by the Royal College of Physicians of London.

Thus we have "diseases of the apparatus of digestion; diseases of the organs of circulation; diseases of the organs of respiration;" &c. And the work is by *Vogel! Verbum sat sapientibus.*

What to do and what to avoid in examining children, is what neither lectures, nor clinical instruction—at home or abroad—has usually taught. These things have been learned by slow and vexatious experience; though now that the Dispensary has been reorganized and the Children's Hospital established, there is reason to expect a great improvement in the matter. However this may be, Vogel gives "Rules for the Examination of Children." We extract portions of the chapter on that subject.

"There are three circumstances which act as obstacles to the child's physician: the absence of speech, the marked agitation which the examination always induces, and, lastly, the crying which often accompanies this agitation. The first obstacle, of course, cannot be removed; it may, however, in a measure be replaced by a well-directed, comprehensive interrogation of those in charge of the child; the last two, on the contrary, must be avoided."

"Eusèbe de Salle very correctly observes that the healthy nursing has a totally expressionless physiognomy, in which every one, a mother perhaps excepted, must agree with him. The fact is all the more important, that sick children have a certain ex-

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pression of countenance, in great part due to the disappearance of the adipose tissue from the subcutaneous tissues; in part, however, this is due to a peculiar contraction of the otherwise relaxed facial muscles."

"Alas! it will not be made so easy for the physician to recognize and diagnose a disease by merely inspecting the face. But there is one single sign characteristic of a certain disease found in the face, namely, the rising of the alae nasi with every inspiration, by which we are able to diagnose, with the greatest certainty, an inflammatory affection of the lungs."

"Healthy children, when tired, fall asleep in any posture and quietly continue to do so; but in pneumonia, in most instances, they choose the dorsal decubitus, or lie on the affected side, and will immediately turn over if they happen to be placed upon the unaffected side. Children with scrofulous inflammations of the eyelids, and sometimes those with cephalic pains, lie upon the face."

"When infants during nursing, or shortly after that, are laid upon the left side, they generally become restless and begin to vomit; this is apparently owing to the enormous size and weight of the liver, which in this position presses upon the stomach. For that reason also do nurslings suck with more ease at the left breast, for, being oftener put to this one, more milk is usually found in it than in the right. This argument is quite probable, from the fact that nurslings who obstinately refuse to suck at the right breast will very often take it without any objection as soon as their lower extremities have been put upon the mother's right arm and they are allowed to nurse while lying upon the right side. Children frequently point directly to the site of the pain with the hands."

"The flexing and extending of the lower extremities by starts and jerks, attended by crying, are the ordinary signs of flatulence, and cease as soon as the flatus has been discharged."

"The examination of the pulse can only be carried out with success in a sleeping child. In one that has waked up suddenly, or has become agitated through much handling, the physician will find that he has to battle with insurmountable difficulties. The child seeks in every manner to twist itself loose from his grasp, and the firmer the arm is fixed, the tenser does the child make its muscles, and it often becomes wholly impossible to feel the pulse."

"Various measures have been suggested by which we might be enabled to feel the

pulse in a child, such as to allow it to suck at the breast or bottle. But the act of sucking always accelerates the respiratory and the cardiac actions, and for this reason no useful information whatever can be obtained by this method. It is best, therefore, to quietly approach the child while asleep, lightly compress the radial artery with the end of the index-finger, and, when it moves its arm, accompany it in all its movements without the least resistance; after the removal of the fingers the child usually sinks again into a sound and lasting sleep. But if the restlessness of the arm continues, the examining finger should be withdrawn, because otherwise the child will surely be awakened, and no time is so unfavorable for examination by the physician as that after awaking from sleep. The neglect of these precautionary measures will doubtless serve to explain the reason why most authors state the pulse of the nursing infant to be so high, 130 to 140 beats per minute. Valleix, physician to the Foundling House at Paris, has found the medium of the pulse in thirteen healthy sleeping nurslings, from three to twenty-one days old, to be 87 (minimum 76, maximum 104). In twenty-four healthy sleeping nurslings, I found the minimum 92, maximum 136, medium 109 per minute. It is still more difficult, on account of the smallness of the artery, to discriminate between a hard and a soft pulse. Undoubtedly, our chief attention in nurslings should be directed to the rhythm of the pulse; an unrhythmical, interrupted pulse occurs in cardiac affections and cerebral diseases. Great frequency of the pulse-beats in children has much less significance than in adults, for that condition is induced by the least excitement and the most trivial pain. Slowness of the pulse is observed in sclerema of the new-born, and in cerebral compression. In many instances before death the pulse is altogether imperceptible for one or several days."

"*Inspection.*—First of all, as regards the number and kind of respirations in children who have not yet passed the first year of life, it appears, from the very positive statements of the most conscientious authors, that upon this point no definite normal numbers can be given. These statements fluctuate between eighteen and thirty-five respirations per minute. Above all, we must remember that the respirations, even of healthy children, are not alike during sleep and wakefulness. Only during sleep is respiration performed in a perfectly regular and rhythmical manner."

"*Percussion of the infantile thorax* is best executed without a pleximeter or hammer, finger upon finger. * * * Children carried about upright are best percussed in the arms of the mother. * * * Young infants should be percussed in the lateral decubitus, from which little opposition will seldom be encountered."

"The percussion-stroke should be made absolutely softly, gently, and slowly, and should be continued long enough on one spot until there has been a chance to percuss in the moment of the deepest inspiration and most complete expiration; for this purpose, ten and even more blows will often be requisite."

"I must call special attention to a phenomenon which, in spite of its daily occurrence, has nowhere yet been properly estimated, and still less satisfactorily explained, namely:—when both lungs of a healthy child are percussed by way of comparison on the back, from birth up to the second and even the third year, there is found on both sides, so long as the child breathes calmly, and makes no noise whatever, a sonorous, feeble, or strong tympanitic percussion-sound; as soon, however, as it becomes disturbed or restless, or when it resists the examination, and proclaims its unwillingness by a pressing outcry, then *the whole condition is suddenly changed.* Instead of the equal sonorous tympanitic sounds of both sides, a moderately dull percussion-sound prevails over the left lung, and a flat, empty sound over the right lung as far upward as the spine scapulae. But, if the percussion is now quietly continued on the same spot some seconds, or even for minutes, till it happens that a percussion-stroke coincides with the moment in which the child again inspires deeply, and, for that purpose, has to abandon the abdominal pressure till the completion of the respiratory act, the original normal percussion-sound is suddenly heard again; it, however, lasts but a few moments, and is instantly succeeded by an empty, flat sound."

"The proximate reason for this diminished sonorous sound upon the entire dorsal service is owing to the abdominal pressure, whereby the whole contents of the abdomen are compressed upward. The difference between the right and left sounds, namely, the completely empty, flat percussion-sound on the right, is explainable by the strong upward pressure of the liver, the size of which is still disproportionately greater in comparison with the rest of the abdominal organs."

"The singular phenomenon just described, namely, the complete dulness posteriorly toward the right side, causes my confidence to be somewhat shaken in the histories of pneumonia in small children that we find so frequently in text-books and journals; and the more so, as the dulness in those cases is always described to have been most intense posteriorly on the right side. Such physical investigations can only be relied upon in which it is expressly stated that, during the investigation, the child respired perfectly calmly and quietly; that it did not employ the abdominal pressure, and that the dulness detected then was also present during the inspiration, and could be distinctly discerned for several days. I am convinced that attacks of bronchitis, which in the first days of their existence are attended by some fever and dyspnoea, are regarded as cases of pneumonia in consequence of the observer's not being aware that the dulness which, under the circumstances described above, appeared on the right side posteriorly, is a *normal physiological condition*; this may also explain the successful treatment of and rapid recoveries from pneumonia."

"*Auscultation.*—In emaciated children, when the intercostal spaces present marked depressions, it is altogether impossible to adapt the stethoscope accurately, and hardly any child tolerates the auscultation of the anterior or lateral surfaces of its thorax with the naked ear, therefore it only remains for us to auscultate the back. But while in the adult we definitely know the space that is bounded by tracheal respiration, in children this is not the case. In healthy children we hear over the entire back, often even over the entire thorax, a *loud expiration and a tubular inspiration*, so that, although this condition, when met with in an adult, would make us unhesitatingly affirm an extensive consolidation of the pulmonary tissues, yet it would not in children. * * * Auscultation of the voice furnishes good cardinal points. The voice, it is true, consonates all over the infantile thorax, but where solidified pulmonary tissue exists, there it consonates so forcibly that the examiner believes he holds his ear against the mouth of the child, and that it cries directly into it. This sign is all the more valuable, as it is available in crying children, and therefore does not necessitate any particular care or loss of time in examining the child.

"*Palpation* is the simplest and most convenient method of examining the infantile thorax. When the hand is laid upon the

chest of a child, the temperature and moistness of the skin are immediately appreciated." * * * *

"Besides the above general advantages, the hand that is laid upon the chest also feels the fremitus of the voice, i. e., the vibrations of the thorax communicated to the hand, which originate with the voice, and disappear again as soon as it ceases. These vibrations are most strongly felt at the spot where they originate, over the trachea and larynx, very distinctly along the spinal column, in the space between the scapulae; plainly in the lateral regions, and over and above the clavicles and the sternum. Where the heart and liver are in direct contact with the chest, the fremitus is completely arrested. Layers of adipose tissue also weaken the vibrations.

"Now, these phenomena occur in every healthy child, but become modified as soon as a part of the pulmonary tissue undergoes solidification by compact tubercles or scirrhous infiltration, lobar hepatization or carnification. When, in the above affections, the larger bronchi, terminating in the solidified parts, remain permeable, the voice is *felt much stronger than in health*. Occlusion of a bronchus abolishes all fremitus over a corresponding portion of the lung. Fluid effusions into the pleural sacs, where the liquid keeps the lung from the ribs, also hinder us from feeling the voice. On the other hand, in the compression of the lungs that necessarily results from that condition, the fremitus is much augmented over those parts of the thoracic walls against which the compressed lungs lie.

"In addition to the voice, the rhonchi may also be elicited by palpation. If the tenacious masses of mucus which fill the trachea and bronchi in the form of lamellae or trabeculae are set in motion by the respiration, a certain sound is produced, which is carried along the thoracic walls farther and more distinctly than any other. On this latter circumstance is based the erroneous supposition that these sounds originate where they are most distinctly felt. The higher up toward the trachea the vibrating mucus is situated, the more diffused are the sounds produced thereby felt over the thorax; the smaller the calibre of the bronchus containing the mucus, consequently the nearer the periphery of the lung, the more circumscribed will the sound be on the thoracic walls.

"*Palpation* of the voice and rhonchi should never be omitted, and in restless children must even take the place of percussion and auscultation.

"These are the main points to which the physician has first to direct his attention in the sleeping or at least in the quiet child. Percussion should always be the last thing to perform, because by it the child is apt to be waked from its sleep."

"Valleix, when he desires to examine the abdomen of a child, causes it to be brought suddenly to a bright window or near a light, on which the restlessness, as a rule, instantly ceases; the child is attracted by the light, and gazes at it steadily for some time. This moment must be made use of to make a slow, increasing pressure upon the abdomen, to which the child will calmly submit so long as the pressure causes no actual pain. In this manner the abdomen of the youngest child may frequently be pressed so firmly as to touch the spinal column. If the pressure is really painful, the child will utter an agonizing cry and distort its features, which sometimes directly ceases again as soon as the pressure has been removed."

"The examination of the mouth should never be omitted. By pressing slightly upon the chin the child will usually open the mouth, or a finger may be introduced and carried slowly backward between the cheek and gums, till it reaches the anterior border of the ascending ramus of the lower jaw; here the finger is insinuated between the upper and lower maxillæ, and now the mouth may be opened to the required extent. By a little adroitness and practice it is very easy to examine with the index-finger the posterior pharyngeal wall, the posterior nares, the epiglottis, and even the glottis itself; such an examination will often give much important information in certain cases of diphtheritis, retropharyngeal abscesses, croup, &c.

"The tongue, in children, is even less 'the mirror of the stomach' than in adults. Children with severe intestinal diseases very frequently have a perfectly normal red tongue, and conversely healthy children with a good appetite and regular digestion often exhibit a very white, or, at least, a tongue spotted with islands of white fur."

"Teething children with swollen gums allow their mouths to be examined very unwillingly; it is therefore necessary to become accustomed to examine both jaws as rapidly as possible by one sweep of the finger, so that they may not thereby be irritated and disquieted."

"The most important conclusions, as to the nature of the disease, to be drawn from the cry, are the following:—children who suffer from pneumonia, pleuritis, or atelec-

tasis of the lungs, *never cry loud, or continuously*; they can only emit a low, painful moan. Children afflicted with catarrhal, diphtheritic or croupous laryngitis, are unable to cry at all, they are aphonic; the milder degrees of catarrhal inflammation of the larynx do not completely suppress the cry, but make it hoarse. Hydrocephalic children utter only shrill tones, and after each outery relapse into their former drowsiness. A child ill with fever never cries continuously nor long, even when it suffers violent pains. Children suffering from otitis, deep abscesses, or when wounded, cry the longest and most violently.

"In the cough we have a very important index by which to judge of the state of the respiratory organs. If the child coughs loosely, loud, and without pain, it is very certain that we have only a simple bronchial catarrh to deal with; if, however, it distorts the countenance when provoked to cough, if the cough is dry and low, and if it seeks to suppress it as much as possible, then it is equally as certain that we have to deal with an inflammatory affection of the lungs. Croup begins with a dry, barking cough, which but too soon gives place to a low aphonic sound."

"Now, as regards the conduct of the physician, the utmost patience and gentleness are indispensable in his intercourse with children. Those from one to three years old are always the most difficult to manage. Nurselings and children under one year are seldom very timid, and are easily quieted by some diverting noise. But older children often have an insurmountable shyness for every strange face. Such a child the physician must not approach immediately after entering the room; he should at first ignore the child's presence altogether; should enter into a conversation with the parents or nurse, in a gentle voice, and finally gradually approach the child with some bright object, or with a piece of sugar. When at the bedside, the child should not be immediately uncovered, its abdomen felt and squeezed, and the physical examination instituted. Some questions suitable to its age are first put to it, its playthings are admired, or it is told of some new ones, and promised to be presented with them, &c. &c.; in short, it is necessary to be on friendly terms with the child before the undertaking of a regular, thorough examination can be thought of. In this manner, however, it is almost always possible to quickly gain the friendship of the child. If, with a friendship formed in this manner, a little seriousness and energy are allowed to be

blended, much more authority will thereby be acquired in a moment over the child than the parents ever thought possible. Children, under such authority, allow themselves very quietly to be examined, readily lie down upon any side desired, take even the bitterest medicines without objection, and assist the medical examination in every manner possible. *Never, and under no circumstances, should the attempt be made to bring an unruly child into obedience by harshness, by firmly holding it, and still less even by a slight blow.* Such measures not only cause greater fear, and give rise to violent crying, but the physician will thereby only bring upon himself the aversion and even hatred of most narrow-minded parents—the class that usually have boorish and unmanageable children. On the other hand, if the physician in such instances retains his equanimity and mild voice, the parents will feel most disgraced by the ill-breeding of their children. They then sometimes punish the child so severely that the physician, from a medical point of view, has to interfere, and then he will have gained an humble and submissive patient. In general, the principle will hold good that the more seriously sick the child is, all the more easily will it permit itself to be examined.

"To the commencing practitioner, inexperienced in the Pædiatria, these observations may appear insignificant and unimportant, but, when he has once conducted himself in accordance with them, he will perceive that without these details a successful treatment would be clearly impossible, notwithstanding all his knowledge and skill in the methods of examination."

From the succeeding chapter on "Nursing and Care of Children," we quote briefly.

"The essential difference between woman's milk and cow's milk does not consist in the differences of the quantities of the milk-sugar and of the butter, but in this:—that the casein of cow's milk, when it turns sour, curdles into large lumps, and even into a solid gelatinous mass; whereas the casein of woman's milk always coagulates into small lumps and loose flakes."

"The loose flakes of the woman's milk are easily digested and assimilated; the firm lumps of casein of the cow's milk, the infantile gastric juice is incapable of dissolving, they are thrown up again or wander through the whole intestinal canal as large, sour, undigested masses, irritating it in its entire length. Hence it all depends upon our ability of depriving the casein of

cow's milk of this property, and that in a great measure may be accomplished by rendering it slightly more alkaline. For this purpose I have been in the habit of using for some time back a solution of carbonate of soda (3j. to water 3vj.), a teaspoonful of which is added to the milk at every meal. When the milk is boiled into a mess or porridge, I cause the solution to be added to the cold milk, and in summer the entire quantity of milk to be consumed in the twenty-four hours should be rendered alkaline immediately upon its arrival at the house, by adding a tablespoonful of the solution to every five ounces of milk. For very young children I cause, in addition, one-third of water and as much milk-sugar as can be taken upon the point of a knife to be added at every meal; children over three months old drink cow's milk as it is, but always with the addition of the carbonate. I have seen dozens of children brought up upon milk thus prepared, and the majority have experienced no digestive derangements whatever. If the parents are sensible, they will abstain from giving the child all other kinds of food but this milk for the first three months, and at the beginning of the fourth month one other mess a day only may be allowed."

"By far the most rational of all substitutes for the mother's milk is undoubtedly the so-called *Liebig's* soup, by which the great chemist has rendered an everlasting service to the Pædiatria. As is well known, we find:—

| | Blood-forming material. | Caloric-generating material. |
|-------------------------------|-------------------------|------------------------------|
| In woman's milk . . . 1 | 3.8 | 3.8 |
| " cow's milk, fresh . . . 1 | 3.0 | 3.0 |
| " cow's milk, skimmed . . . 1 | 2.5 | 2.5 |
| " wheat-flour . . . 1 | 5.0 | 5.0 |

"A mixture of wheat-flour and cow's milk may therefore be easily produced that will present the same proportions of blood-forming and caloric-generating component parts as human milk; wheat-flour, however, reacts acid, and contains much less alkali than woman's milk, less than is requisite for the formation of normal blood, and, finally, a totally unnecessary labor, the conversion of the starch-flour into sugar, is imposed upon the infantile organism. It is, therefore, desirable first of all to convert the starch-flour to the soluble form of sugar and dextrine; this is easily accomplished by the addition of *malt-meal* to the wheat-flour. When milk and wheat-flour are boiled into a thick soup, and malt-meal is added to this still hot soup, the mixture in a few minutes becomes liquid and acquires a sweet taste; upon this and upon an addition of an alkali

in order to neutralize the acid reaction of the wheat-flour, is based the formation of *Liebig's soup*."

This soup Vogel recommends to be used in large cities, where it is difficult to procure *unadulterated cow's milk*.

Measles, Vogel classes with Diseases of the Skin, while the new nomenclature places it among "General Diseases." But both systems give it the name *morbilli*. Vogel, however, does what the new nomenclature does not—he finds a separate disorder to which the name *rubeola* has been given. He thus speaks of it.

"*RUBEOLA (Rötheln)*.—There is scarcely another disease upon which the views of authors differ so vastly as upon *rubeola*. Some look upon it as a modified scarlatina, others as measles, and still others as an amalgamation of both. Erythema, urticaria, even typhous and cholera exanthema, have been described as *rubeola*; and the confusion finally became so inextricable that later writers have denied the existence of the disease entirely, and ascribed all obscure and doubtful cases to some of the above-mentioned affections. This latter view I also entertained till the spring of 1865, when I became better informed. At that time eleven persons—three adults and eight children, from six months to eight years of age—came under my care. Without any distinct prodromata presented, they all had an eruption of exanthema, which differed in no respect from that of measles. My friend *Lindner* at the same time had five additional cases to treat, and, upon inquiries, several physicians in Munich recollected having seen at that time a peculiar fever, 'a febrile urticaria with a measles-like exanthema.' Neither before nor since that time have I met with this eruption. It is proper to remark that this disease was not immediately preceded nor soon followed by any epidemics of measles or scarlet fever. The phenomena presented by this affection are sketched by *Köstlin*, of Stuttgart, in the following manner:—In the winter of 1860-'61 an extensive epidemic of *rubeola* prevailed in that city during five or six months. The exanthema was not smooth, but slightly papulous, had a yellowish tint, not confluent, but formed short or long, serpentine, seldom straight lines, which, in most instances, covered the entire body. The exanthema was not infrequently accompanied by considerable itching of the skin. The eruption, as a rule, disappeared in two or three days, or even sooner. In most instances it appeared, and ran its course

without the least catarrhal symptoms, and without fever. Though mild, this exanthema was extremely infectious, infecting whole families. Several children were even twice attacked during the same epidemic. It appeared at the same time in various other cities and towns in Wurtemberg.

"*Symptoms*.—The symptoms which I have observed may be comprised in a few words. The exanthema differs in no respect from that of *morbilli*; small round spots of the size of lentils cover the entire body, occasioning, in most instances, a considerable amount of itching. At some places these spots stand so closely together that they coalesce and form irregular figures. They also rise somewhat above the level of the normal integument, and the finger, in lightly passing over them, perceives an unequal hardness. The eruption differs, however, very much from measles in respect to its duration. It completely disappears by the end of the first, or, at the longest, by the end of the second day, and the desquamation that succeeds it is very insignificant, barely noticeable. The same is true of the catarrhal symptoms. Although, along with an intense eruption of the exanthema on the face, the eyelids swell up, and the conjunctivæ are somewhat injected, still bronchial catarrh is uniformly absent, which, in *morbilli*, on the contrary, is a pathognomonic, never-failing symptom. Scarcely any precursory stage was noticeable in most of our cases, and the indistinct febrile phenomena disappeared so completely after the first day, with the fading of the exanthema which soon followed, that by the third day it was totally impossible to keep the children in bed, and they quickly recovered without the first sequelæ.

"*Treatment*.—This is purely expectant. Internally, dilute acids, and externally, cold ablutions, to relieve the intolerable itching of the skin, were the only remedial means employed in this most harmless of all acute febrile exanthemata."

PROF. WOOD, in his monograph on the hemp plant of North America, concludes it an excellent substitute for the foreign article, being both cheaply prepared and active. He uses the male seedling plants from Kentucky, and proved his faith in it by dangerous experiments upon himself. The active principle is a soft greenish resin, and is sufficiently active in quarter and grain doses.—*Chicago Medical Journal*.

Medical and Surgical Journal.

BOSTON: THURSDAY, MARCH 31, 1870.

NOTES FROM FOREIGN JOURNALS.

The Story of two Severed Arab Heads.—Such is the unique title of a unique monograph, on an experiment for which we coin the word *mortuo-rivivisection*. The paper was sent us by the author, Dr. Bonnafont, and we proceed to translate a portion of it.

On the occasion of every execution which takes place in Paris, the newspapers are taken up with the question, happily without foundation, whether or not the head after being severed still retains the power of sensation. The reflections on this subject published in the *Figaro*, at the time Lemaire was guillotined, remind M. Bonnafont of the experiments made by him in relation to the subject, and which in his opinion are conclusive. Although, as he says, these experiments were communicated to the Academy of Sciences several years ago, and have been reproduced by the sprightly author of the *Causes Célèbres*, Frederic Thomas, they seem worth republication, especially since the appearance of M. Grousset's article.

We will now let M. Bonnafont speak in the first person.

It was, I think, in 1853 that a physician of New York, Dr. Wilson, expressed the opinion that a head severed from the body retained sensation for *two and even three minutes*. When present at a party in Algiers, a military *sous-intendant*, M. de Fallois, took me aside and asked what I thought of this assertion of the American physician. I answered that the thing seemed to me impossible. But, in spite of all the physiological reasons I cited, nothing could shake his faith, which was also shared by a large number of the persons present. Being unable to convince him by reasoning, I proposed to my ingenious disputant a decisive method of cutting short all discussion, by attending and experimenting at an execution if he should have the courage. At that time nothing could be easier than the carrying out of this project; for the Arabs were committing crimes quite often, and justice, com-

pelled to be severe, was furnishing to the executioner frequent opportunities of exercising his skill. M. de F. recoiled with astonishment at my proposal, and at first knew not what to reply. But, his self-esteem being aroused, he decided to accept the challenge. I learned the next day, through the judge-advocate, that two Arabs were to be beheaded a few days subsequently. He proposed, if I wished to be present at the execution, to obtain permission for me to attend.

The day having arrived, I took the measures requisite to render the experiment as conclusive as possible. I had beforehand caused to be carried to the place where the execution was to occur, a small and very low table, such as used by the Arabs. On this was placed a shallow wooden vessel, which was commonly employed for mixing a certain paste, and which I had filled with powdered plaster of Paris. It is needless to say that the experiments were to be made unexpectedly to every one present but my companion and myself. About a quarter of an hour before the arrival of the two prisoners, we betook ourselves to the place of execution, provided with a small speaking trumpet and a very keen stiletto. It had been arranged with the executioner that as soon as the head was cut off one of his assistants should set it on the powdered plaster, in order to arrest the hæmorrhage as much as possible. The first head being cut off, M. de F. was to call it by name, with the speaking trumpet applied to the ear, while I should observe whatever might take place in the eyes and the other parts of the face. Well! it turned out that notwithstanding the cries uttered in the ear I noticed not the slightest sign of life. The eyes remained dull and motionless, the face colorless. The muscles contracted scarcely at all under the punctures made with the stiletto.

We changed places for the second head. M. de F., who had been a little pale and flustered at the first experiment, had recovered his self-control at the second, and was able to ascertain for himself that death had been complete and instantaneous. It could not be otherwise, physiologically speaking. For, immediately upon section

of the large arteries which carry the blood to the encephalon, there is a sudden sanguineous depletion, which must necessarily bring with it syncope, followed instantly by death. * * * * *

M. Bonnafont complains that these two historical heads were sent (by a person who had borrowed them from him) to M. de Blainville, of the Museum of Natural History at Paris.

MM. Evrard and Beaumetz report a course of experiments, much more complete and exhaustive than the above, on the head of a guillotined criminal. The negative results were of course similar to those of M. Bonnafont. The muscular contraction produced by electricity was shown (clearly enough to undeceive, we should suppose, the most credulous) to have no connection with sensation or consciousness, by the fact that the muscles of the face continued to contract a half an hour after the extraction of the brain.

Spontaneous Combustion, so called.—Dr. Alexander Ogston, of Aberdeen, contributes an article on this subject to the *British and Foreign Medico-Chirurgical Review*. Dr. Ogston has collected the accounts of a considerable number of alleged instances of this phenomenon; some of which he sets down as fables, and others as truthful descriptions of the facts observed. The interpretation of those facts, however, he considers not to bear out the theory of spontaneous combustion. He infers increased combustibility. That same increased combustibility, he admits, is often traceable to excessive indulgence in alcoholic potations. But, at this point the path of investigation divides into two diverging lines. Is the combustibility increased by the impregnation of the living tissues with alcohol; or does the matter reduce itself to a mere increase of a natural compound of the body which is easily ignited—viz., the fatty tissue? Dr. Ogston favors the latter theory. He remarks that the subjects of what is called spontaneous combustion have been generally, though not invariably, fat persons. On the other hand, he in a note cites experiments on flesh removed from the body, from which it appears that soaking in alcohol neither accelerates or

retards combustion. He also quotes the suggestion of another, that the frequency of the occurrences on which the theory of spontaneous combustion from the presence of alcohol in the system is founded, is owing to the fact that the presence of intoxication materially increases the liability to the accident, and deprives the victim of the power of assisting himself or giving an alarm. The ignition is considered to be accidental—never spontaneous.

Dr. Ogston, however, does not deny that free alcohol may be found in the body; but, on the contrary, says that he has himself seen cases of death in people under the influence of alcohol, when the smell of it was strong in the blood, and was sometimes so marked in the ventricles of the brain "that it was possible to ascertain the nature of the beverage used."

BROKEN RIBS IN THE INSANE.

The *Boston Daily Advertiser*, in a brief notice of our extracts from the London *Medical Times and Gazette* relative to "broken ribs in the insane," says:—"Dr. Sankey's theory appears to be that the injuries were produced in the struggles between patients and attendants, but that the frantic conduct of the maniacs makes them almost unavoidable." We should like to have the *Advertiser* add another part of the argument, viz., that many at least of these injuries have been produced before entrance into hospital; and that the unskilled friends and even relatives of the insane are really more likely to do harm than the trained attendants of the hospital. This may be illustrated by a familiar fact. A policeman will sometimes be accused by the bystanders of too roughly handling an ugly customer, one who is perhaps frenzied from intoxication—crazy drunk; and yet if the prisoner were entrusted to any one of those lookers-on, the latter would quite likely outdo the officer, by losing his temper, and knocking his charge on the head.

The *Advertiser* speaks of "the surprising number of these cases which have lately come to light." So far as Mr. Charles Reade's collection of them is concerned, we are credibly informed that a portion of the list which he has lately published

was got together years ago, before the publication of the novel we alluded to in our former remarks; and that some if not a large portion of his accounts were obtained from the discharged attendants of insane asylums, while he was "cramming" for that work of fiction.

If we were to heed all that we hear from disaffected persons who have been dismissed from the service of public asylums of any kind, we should perhaps be led to suspect that no one of these institutions was as near perfection as it should be. Of course no institution is free from occasional mistakes in the selection of the persons it employs. And, in these exceptional instances, the individuals who may have been turned away in disgrace are not likely to speak favorably of the general management which has weeded them out.

An article in the *Practitioner*, "On the Uselessness of Drugs in the Treatment of Organic Growths," by Alfred Meadows, M.D., has the following passages, which we have transcribed from a private copy of that journal:—

"While declaring thus plainly my utter unbelief in the supposed power of drugs to remove organic growths from the uterus or ovaries, I do not forget the testimony of many very competent observers to the fact that uterine fibroids do occasionally disappear. I can only say that I have never had the good fortune to witness such a thing, and I am well aware of the extreme difficulty which surrounds the diagnosis of these cases. It may be that this difficulty has much to do with the supposed disappearance of some at least of the tumors in question. But, even admitting that the diagnosis was perfect, and that the result as stated did actually occur, we are still without any evidence to guide us as to the mode by which such a result was obtained, and certainly we have no right to assume that the remedies given exercised the smallest influence. Such an assumption appears to me the more remarkable when I notice what those remedies are—viz., preparations either of iodine, bromine or chlorine, in combination with iron, potassium, mercury or calcium. Still more remarkable is it to observe that the external application of some of these agents to the skin of the abdomen is regarded as an essential and im-

portant part of the treatment! What right, I ask, have we orthodox practitioners, as we self-complacently call ourselves, to ridicule the follies of homoeopathy while we countenance and gravely recommend such an absurd practice? Of very small use is all our advance in physiological and pathological knowledge if it does not teach us how foolish it is to expect that the rubbing in of iodine to the skin of the belly can remove one single fibre, one solitary cell, or one drop of fluid from a uterine or ovarian tumor. If we consider the subject in its anatomical or physiological relations, to say nothing of pathology, there is no explanation which can be offered, either in reason or in fact, why such a practice should ever have been introduced; and lamentable as much of our treatment of disease is, I would match this one sample against any which can be brought for ignorance and folly. * * * * *

"Turning now to the medicinal or internal treatment of these organic growths—uterine or ovarian—we have I fear no better reason to be satisfied with the current practice of giving preparations of iodine, bromine and chlorine, with mercury, potassium, calcium, &c. There is, in fact, no more trustworthy evidence in favor of these remedies when given internally than when they are applied externally. If in any case they had the virtue which is imputed to them, we have a right to expect that that would be exercised not occasionally and with extreme rarity, but very frequently, or at least in a fair proportion of cases; for it is unreasonable and contrary to all experience to suppose that a remedy which must act in a definite and intelligible manner, if it is to accomplish the reduction or removal of an organic growth, should exercise its properties only once in hundreds or thousands of cases. The very exceptional and extremely rare instances of its reputed action, even according to the admissions of its advocates, is *pro tanto* presumptive evidence against the existence of such a property and in favor of the view that the effect was, as it were, accidental—independent altogether of the imputed agent, and attributable to some entirely different cause.

SOME time during the period of our first connection with this JOURNAL, we entered a complaint that our cousins over the water had ignored the researches and discoveries of Dr. H. I. Bowditch, of this city, upon Soil Moisture as Coincident with the Preva-

lence of Phthisis, and had offered to the public their own investigations as primary. During a recent conversation with Dr. Munroe, we casually learned for the first time that there was a copy of the "Blue Book" in the possession of a gentleman here, and that it contained a full *amende honorable* on this point. We have obtained the great favor of the loan of that volume—entitled the Tenth Report of the Medical Officer of the Privy Council—and now present the following extracts from it:—

"The water-holding power of a soil is determined first by its degree of perviousness; and this, to begin with, is not the same throughout the whole extent of each bed, and still less can perviousness or imperviousness be taken as absolute terms to indicate that all pervious beds are exactly comparable together, or that one impervious bed is just as impervious as another. Secondly, the water-holding power of porous soils of equal permeability is determined in the main by different considerations than those which settle the water-holding powers of retentive soils of equal impermeability. In the former case, elevation, slope of subjacent beds, and other conditions indicating facility for water running away have chief weight in determining its wetness or its dryness; in the latter case, of retentive soils, every consideration yields to the paramount one of surface slope." * * * * *

"The following general conclusions, then, result from the present inquiry:—

"(1.) Within the counties of Surrey, Kent and Sussex there is, broadly speaking, less phthisis among populations living on pervious soils than among populations living on impervious soils.

"(2.) Within the same counties, there is less phthisis among populations living on high-lying pervious soils than among populations living on low-lying pervious soils.

"(3.) Within the same counties, there is less phthisis among populations living on sloping impervious soils than among populations living on flat impervious soils.

"(4.) The connection between soil and phthisis has been established in this inquiry—

"(a) by the existence of general agreement in phthisis mortality between districts that have common geological and topographical features, of a nature to affect the water-holding quality of the soil;

"(b) by the existence of general disagreement between districts that are

differently circumstanced in regard of such features; and

"(c) by the discovery of pretty regular concomitancy in the fluctuation of the two conditions, from much phthisis with much wetness of soil to little phthisis with little wetness of soil.

"But the connection between wet soil and phthisis came out last year in another way, which must here be recalled—

"(d) by the observation that phthisis had been greatly reduced in towns where the water of the soil had been artificially removed, and that it had not been reduced in other towns where the soil had not been dried.

"(5.) The whole of the foregoing conclusions combine into one—which may now be affirmed generally, and not only of particular districts—that wetness of soil is a cause of phthisis to the population living upon it.

"(6.) No other circumstance can be detected, after careful consideration of the materials accumulated during this year, that coincides on any large scale with the greater or less prevalence of phthisis, except the one condition of soil.

"(7.) In this year's inquiry, and in last year's also, single apparent exceptions to the general law have been detected. They are probably not altogether errors of fact or observation, but are indications of some other law in the background that we are not yet able to announce.

"*Postscript.*—The conclusions of this report had been drawn, and their agreement with observations of last year's report had been seen, when, at the end of 1867, my attention was directed by Dr. Gavin Milroy to the Seventh Annual Report of the Registrar-General for Scotland, in which (pp. xlvii.-xlviii.) he quotes 'the conclusions which Dr. Bowditch, of Boston, U. S., has drawn from a very thorough inquiry into one of the causes of consumption in Massachusetts.' The Registrar-General writes:—'It must be remembered that consumption is much more fatal in Massachusetts, and in the United States of America generally, than in this country; and on investigation it was found that the towns, villages, hamlets, and houses which were situated at or near undrained localities, or were on heavy impermeable soils, or on low lying ground, and whose sites were consequently kept damp, had a very much larger number and proportion of cases of consumption than towns, villages, hamlets, or houses which were situated on dry or

rocky ground, or on light porous soils where the redundant moisture easily escaped. Let us see how such an explanation would agree with the very different proportion of deaths from consumption which occur in the eight principal towns of Scotland. Taking a five years' average (1857 to 1861 inclusive), it is found that, supposing all these towns are brought to an uniform population of 100,000 persons, there died annually from consumption 206 persons in Leith, 298 in Edinburgh, 310 in Perth, 332 in Aberdeen, 340 in Dundee, 383 in Paisley, 399 in Glasgow, and 400 in Greenock. The fact is, that if each town had been arranged in the order of comparative dryness of its site, they would almost have arranged themselves in the above position—Leith and Edinburgh the most free from consumption, and also having the driest sites; Glasgow and Greenock the most ravaged by that disease, and beyond all comparison situated on the dampest sites. The above fact, then, with regard to the towns, corroborates, in the most striking manner, the conclusions of Dr. Bowditch, and should be a valuable help to the sanitary reformer, as to the very important measures which it is their more especial province to carry out. Dr. Bowditch's conclusions also are singularly borne out by the remarkable freedom from consumption at the Cape of Good Hope and South Africa generally, Egypt, &c., and the comparatively high mortality from it in the moist climate of Great Britain; and while they point out the cause, afford valuable indications as to the cure or relief of those affected.

"Until the end of my own inquiry, I was in complete ignorance of Dr. Bowditch's researches. I should not insist on this point, except for the purpose of giving to the conclusions which Dr. Bowditch and myself have obtained the additional weight that they deserve from having been arrived at by a second inquirer, wholly ignorant of and therefore unbiassed by the work of the first. Several efforts that I have made to obtain a copy of Dr. Bowditch's pamphlet have unfortunately failed, and I am therefore unable to give, as I had wished, an abstract of the observations which he brings to the support of his conclusion."

ELECTRICITY AS A THERAPEUTIC AGENT.—Dr. Russell Reynolds sums up the "vital" effects of electricity as follows:—"When the activity of a nerve is too great, as shown by tremor, pain, &c., we may relieve it by the continuous current. An

interrupted current is best if we desire to put a muscle into action which is morbidly inactive; when there is spasm, the continuous current is beneficial. The continuous current will warm a cold limb. In certain forms of palsy and wasting, the nutrition of the muscles can be greatly improved by galvanization and faradization. Facial palsy, lead palsy, and essential paralysis are most speedily improved by the battery current, interrupted slowly. In wasting of muscles from long continued palsy from cerebral disease, faradization, again, is more useful than galvanization.—*Medical Press and Circular.*

DOES CHLOROFORM INFLUENCE THE RATE OF MORTALITY AFTER OPERATIONS?—Simpson believes that mortality has lessened since the introduction of chloroform. According to the figures of J. Arnott, it has increased in amputations by 12, and in lithotomy by 28 per cent. Mr. Erichsen is inclined to think that the rate of mortality has increased since the use of chloroform in operative surgery. When the nervous power is enfeebled, or the blood in an unhealthy state, undoubtedly Mr. E. is right when he says, chloroform does exercise a noxious influence on the constitution and lessens the prospect of recovery.—*New York Medical Record.*

DEATHS FROM CHLOROFORM.

Death from Chloroform in Vienna.—We learn from a private source that on Wednesday, Feb. 23d, another death from chloroform occurred in Prof. Billroth's clinic at Vienna. This eminent surgeon was about to effect forcible extension of the knee on a female aged 24, when in consequence of chloroform narcosis, hardly complete, symptoms of asphyxia prevented his proceeding with the operation. The operator at once commenced artificial respiration. The patient breathed regularly during one minute; but, before the interrupted operation could be continued, breathing became again irregular, and the pulse ceased to be perceptible. Tracheotomy was now performed, but to no effect, as the lungs acted only a few times. Finally, venesection and electro-puncture were tried, but all in vain. The *post-mortem* examination showed small vegetations on the valves of the heart. It is to be noted that the pulse ceased to be perceptible before respiration stopped.—*British Medical Journal*, March 12, 1870.

Medical Miscellany.

MR. EDITOR.—I have to-day received a letter from Mr. Bullock, Superintendent of the Old Colony and Newport Railway, informing me that he has "arranged with the Boston and Providence Railroad so that delegates to the American Medical Association can obtain excursion tickets *via* either line, to and from New York, at seven dollars the round trip."

Delegates and members intending to go to Washington to attend the meeting will govern themselves accordingly.

Yours truly,
March 28, 1870.

HENRY I. BOWDITCH.

FOREIGN JOURNALS.—We cannot recommend those who value promptness more than a saving of expense, to subscribe for foreign journals through American publishing houses. We sometimes receive three of a series of weekly journals at once, and the fourth say three days after, which shows that the first at least have been delayed. On entering a complaint, we were told that the publishers' correspondents let books and pamphlets accumulate till they have enough to fill a box, then forward all together. By sending subscriptions directly to the publishers of the journals, one gets each issue promptly by mail.

S. S. STAUFER, 646 No. Ninth St., Philadelphia, Gutta-percha Pessaries and Speculums. With this address, a ring-pessary has been left on our desk. It presents a smoother surface than the watch-spring covered with gutta-percha, which we have been in the habit of using. It remains for those who have tried it, or may try it, to speak of its comparative advantages.

We have received from Atlanta, Ga., a prospective circular of the "Cotton Zone" *Central Journal of Medicine*, a monthly record of medicine and the collateral sciences, to be issued in the interest of the active practitioner of the "cotton and sugar zone," and edited by Wm. Abram Love, M.D., and others.

LET the "new beginner" read our extracts from Vogel, and he will think of them when confronted with an *enfant terrible* and reads in its mother's face the demand—a true diagnosis or your reputation!

CHLOROUS ACID.—Liquid chlorous acid, as described by M. Brandan, has a deep brown color, and is very fluid. Even below 0° the vapor exerts a considerable pressure. When freshly prepared the fluid boils about half a degree above 0°. If the fluid is suddenly brought to a temperature of about +8 to 10°, it explodes with great violence. It cannot be kept without spontaneous decomposition. The gas given off from this liquid exhibits the well-known greenish-yellow color of chlorous acid. The specific gravity of the liquefied gas at 0°, referred to water at 4° (the point of greatest density of water), is 1.5298.—*Medical Press and Circular*.

MR. SQUIRE, of London, says the odor of chloral is masked by peppermint water.

ERRATA.—In the issue of March 24, the introductory remarks to the "Remarkable Case of Injury of the Brain," make it appear that Dr. Cooper furnished the report and the specimen at the request of the Editor; whereas the credit is due to Dr. J. B. Upham, who has taken great pains in the matter. Instead of "at our request," read at Dr. Upham's request.

In the Journal for March 10, page 177, line 8 from bottom of second paragraph, for "means" read *reason*. Page 178, line second of third paragraph, for "body" read *lady*. Page 179, line fifteen from bottom of second paragraph, for "vagina-uterine" read *vagina-uterine*. Page 180, line eleven from top of first paragraph, insert word *side* after word *right*.

TO CORRESPONDENTS.—Communications accepted:—Analgesia in Secondary Syphilis.—Hydrate of Chloral.—Genito-Seminal Neuropathia.

BOOKS AND PAMPHLETS RECEIVED.—A Hand-book of Operative Surgery. By John H. Packard, M.D., Philadelphia. With fifty-four Steel Plates and numerous Illustrations on Wood. 8vo. Pp. 212.—Reply to Dr. C. A. Robertson's Review of the Report concerning the last illness of Dr. Alden March, by James McNaughton, M.D., Professor of the Theory and Practice of Medicine in the Albany Medical College. Re-printed from the New York Medical Journal, March, 1870. Pp. 16.

DIED.—In Natchez, Mi., Jan. 27th, Dr. Hugh Lyle, in his 83d year.

Deaths in eighteen Cities and Towns of Massachusetts for the week ending March 26, 1870.

| Cities and towns. | Number of deaths in each place. | PREVALENT DISEASES. | | | Typh. Fev. |
|-------------------|---------------------------------|---------------------|------------|-----------|------------|
| | | Consumption. | Influenza. | Smallpox. | |
| Boston . . . | 102 | 15 | 10 | 1 | 1 |
| Charlestown . | 3 | 0 | 0 | 0 | 0 |
| Worcester . . | 19 | 3 | 6 | 0 | 2 |
| Lowell . . . | 19 | 2 | 2 | 0 | 0 |
| Milford . . . | 2 | 0 | 0 | 0 | 0 |
| Chelsea . . . | 10 | 2 | 3 | 0 | 0 |
| Cambridge . . | 10 | 0 | 1 | 0 | 0 |
| Salem . . . | 8 | 0 | 2 | 1 | 1 |
| Lawrence . . . | 8 | 2 | 1 | 1 | 1 |
| Springfield . . | 9 | 6 | 2 | 0 | 0 |
| Lynn | 15 | 2 | 1 | 3 | 3 |
| Pittsfield . . . | 2 | 0 | 1 | 0 | 0 |
| Gloucester . . | 2 | 1 | 0 | 0 | 0 |
| Fitchburg . . . | 6 | 1 | 1 | 0 | 0 |
| Taunton . . . | 7 | 1 | 1 | 0 | 0 |
| Newburyport . | 5 | 1 | 2 | 0 | 0 |
| Fall River . . | 7 | 3 | 0 | 1 | 1 |
| Haverhill . . . | 4 | 1 | 0 | 0 | 0 |
| | 238 | 40 | 33 | 9 | |

Worcester, Lowell and Boston each report one death from smallpox. From all the above-named places there are reported six deaths from scarlet fever, eight from croup and diphtheria, five from measles, and four from whooping cough.

GEORGE DERRY M.D.,

Secretary of State Board of Health.

DEATHS IN BOSTON for the week ending March 26, 102. Males, 57—Females, 45.—Accephalia, 1—accident, 3—congestion of the brain, 1—disease of the brain, 7—inflammation of the brain, 1—bronchitis, 5—burns, 1—cancer, 1—consumption, 16—convulsions, 3—croup, 1—diphtheria, 2—dropsy, 1—dropsy of the brain, 2—dysentery, 1—scarlet fever, 4—typhoid fever, 1—disease of the heart, 1—homicide, 1—infantile disease, 4—intemperance, 1—disease of the kidneys, 1—congestion of the lungs, 2—inflammation of the lungs, 9—marasmus, 3—measles, 3—old age, 3—paralysis, 2—pleurisy, 1—premature birth, 2—puerperal disease, 2—smallpox, 1—stricture of the urethra, 1—suicide, 1—ulcers, 1—unknown, 9—whooing cough, 1.

Under 5 years of age, 42—between 5 and 20 years, 6—between 20 and 40 years, 22—between 40 and 60 years, 18—above 60 years, 14. Born in the United States, 73—Ireland, 22—other places, 7.